



Intelligent Epitaxy Technology, Inc.

## Growth Report

Customer: Rockwell Scientific  
Contact person: Dr. Brindar Brar  
Job (Lot) number: 187-01-HBT-01  
Purchase order number: B \ X433624  
Date: February 28, 2001

Device: HBT  
Substrate: 76.2 mm InP S.I. Prime  
Total delivered: 12

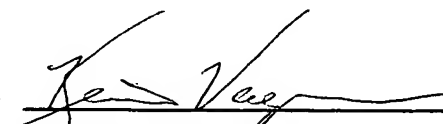
IntelliEPI Part number: 187-01-HBT / DHBT-2a  
Customer Part number: DHBT-Thin collector

Structure 3 of 3

Box 3

Layer	comment	Material	X	(Å) Thick	Dopant	(/cm <sup>2</sup> ) Level	Type
40		In(x)Ga(1-x)As	0.53	1,500	Si	1.0E+19	N
39	Emitter	InP		500	Si	1.0E+19	N
38		InP		500	Si	3.0E+17	N
37	BE spacer	In(x)Ga(1-x)As	0.46	50			i
36 d	Base grade	In(x)Ga(1-x)As	.48 to .48	187	Be	4.0E+19	P
36 b	Base grade	In(x)Ga(1-x)As	.51 to .48	187	Be	4.0E+19	P
36 a	Base grade	In(x)Ga(1-x)As	.53 to .51	166	Be	4.0E+19	P
35	BC spacer	In(x)Ga(1-x)As	0.53	300	Si	3.0E+16	N
5 - 34	Digital alloy layers : InAlGaAs to InGaAs			225	Si	3.0E+16	N
4	Delta doping	InP		25	Si	2.0E+18	N
3	WBG collector	InP		1,450	Si	3.0E+16	N
2	etch stop / contact	In(x)Ga(1-x)As	0.53	200	Si	1.0E+19	N
1	Sub collector	InP		3,800	Si	1.0E+19	N
	Substrate	InP					

Authorized for shipment by:

  
Kevin Vargason

Date:

2/28/01

IntelliEPI  
201 East Arapaho Road, Suite 200  
Richardson, TX 75081

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Fax: 972.234.0069

Page 3



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IntelliEPI Part number: 187-01-HBT / SHBT-2a  
Customer Part number: Thin Collector SHBT

Structure 1 of 3

Box 1

#	Wafer ID	Boule	Slice
1	2427B3B1	I1B0F055800	5
2	2427B3B2	I1B0F055800	6
3	2427B3B3	I1B0F055800	7
4	2427B3B4	I1B0F055800	8

IntelliEPI Part number: 187-01-HBT / SHBT-2b  
Customer Part number: Baseline Collector SHBT

Structure 2 of 3

Box 2

#	Wafer ID	Boule	Slice
1	2428B3B1	I1B0F055800	10
2	2428B3B2	I1B0F055800	11
3	2428B3B3	I1B0F055800	12
4	2428B3B4	I1B0F055800	13

IntelliEPI Part number: 187-01-HBT / DHBT-2a  
Customer Part number: DHBT-Thin collector

Structure 3 of 3

Box 3

#	Wafer ID	Boule	Slice
1	2429B3B1	I1B0F055800	14
2	2429B3B2	I100F043500	43
3	2429B3B3	I100F043500	44
4	2429B3B4	I100F043500	45

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Page 1

022

## Epitaxial Wafer Data

<b>Customer:</b>	Dr. Aiden Higgins	<b>P.O.#</b>	
	Rockwell International	<b>Part#</b>	Baseline DHBT
	Science Center	<b>Item#</b>	1
	1049 Camino Dos Rios		
	Thousand Oaks, CA 91358	<b>Date:</b>	3/29/2001

<u>PROFILE</u>	<u>GROUP</u>	<u>REP.</u>	<u>MOLE %</u>	<u>THICKNESS (A)</u>	<u>DOPANT</u>	<u>CONC.</u>	<u>UNIT:</u>
n InGaAs			53.2	1,500	Si	1.0e19	cm(3)
n InP				500	Si	1.0e19	cm(3)
n InP				500	Si	5.0e17	cm(3)
p InGaAs			53.2	500	C	4.0e19	cm(3)
n InGaAs			53.2	300	Si	3.0e16	cm(3)
Insert Chirped S/L					Si	3.0e16	cm(3)
n InP				25	Si	2.0e18	cm(3)
n InP				1,450	Si	3.0e16	cm(3)
n InGaAs			53.2	200	Si	1.0e19	cm(3)
n InP				3,800	Si	1.0e19	cm(3)
3" SI InP Substrate				635 +/-25um	Fe		

### SUBSTRATE SPECIFICATIONS

<b>Material Type:</b>	-----
<b>Dopant:</b>	Fe
<b>Concentration</b>	None
<b>EPD</b>	<10,000
<b>Diameter:</b>	76

